

# The potential of microtransit for regional commute

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Oded Cats



# Background

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- ❖ Crowding, congestion, accessibility, safety,...
- ❖ Many emerging modes for urban travel
- ❖ Microtransit (& ride-hailing)
  - ◇ On-demand transport service
  - ◇ Between public transport and private car



# Problem (in Slovenia)

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- ❖ Poor quality public transport
- ❖ Ageing railway infrastructure
  
- ❖ Congested roads
- ❖ Parking difficulty
  
- ❖ Daily commuting into cities
  - ◇ <50% live in urban areas
  
- ❖ City of Ljubljana
  - ◇ 300k residents
  - ◇ 140k daily working commuters (57% of all jobs)
    - ◆ Not including students



# Data collection

















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- ❖ Context
  - ◇ SmartMOVE pilot project
  - ◇ 3-month free trial on 2 corridors
  - ◇ GoOpti service provider
- ❖ SP experiment among trial participants
  - ◇ First-hand experience of the service
  - ◇ Biased sample



# Survey



 Car	 Train	 GoOpti
	 <b>3min</b> walk from home	 <b>3min</b> walk from home
 <b>25min</b> drive	 <b>45min</b> ride	 <b>35min</b> ride
 <b>5min</b> walk to work	 <b>13min</b> walk to work	 <b>0min</b> walk to work
 <b>100€</b> monthly fuel	 <b>60€</b> monthly ticket	 <b>30€</b> monthly ticket
 <b>160€</b> monthly parking		
 parking spot <b>Guaranteed</b>		

- ❖ Bayesian efficient design
- ❖ 9 choice tasks
- ❖ 3 alternatives

# Survey



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	<b>3min</b> walk from home	<b>3min</b> walk from home
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<b>160€</b> monthly parking		
parking spot <b>Guaranteed</b>		

In-vehicle time

# Survey



Car	Train	GoOpti
	<b>3min</b> walk from home	<b>3min</b> walk from home
<b>25min</b> drive	<b>45min</b> ride	<b>35min</b> ride
<b>5min</b> walk to work	<b>13min</b> walk to work	<b>0min</b> walk to work
<b>100€</b> monthly fuel	<b>60€</b> monthly ticket	<b>30€</b> monthly ticket
<b>160€</b> monthly parking		
parking spot <b>Guaranteed</b>		

Access walking time

Egress walking time

# Survey



Car	Train	GoOpti
	<b>3min</b> walk from home	<b>3min</b> walk from home
<b>25min</b> drive	<b>45min</b> ride	<b>35min</b> ride
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Monthly expenses



# Survey



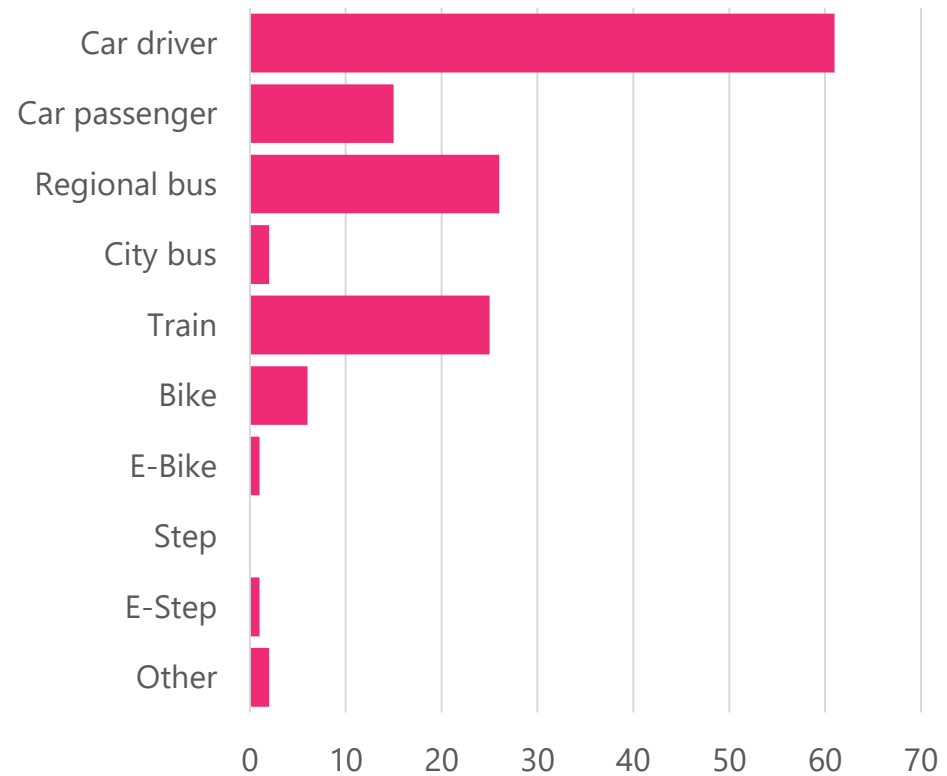
Car	Train	GoOpti
	<b>3min</b> walk from home	<b>3min</b> walk from home
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<b>160€</b> monthly parking		
parking spot <b>Guaranteed</b>		

Parking availability

# Sample



- ❖ 22.03. – 06.04.2023
  - ◇ Pilot running 01.02. – 30.04.2023
  - ◇ 90 respondents
  - ◇ total of 704 choice observations
- ❖ Sample characteristics
  - ◇ 73% female
  - ◇ 91% working age (31-65)



# Mixed logit model



## ❖ Random parameters

- ◇ Alternative-specific constants (normal dist.)
- ◇ In-vehicle time, Walking time, Parking guarantee (log-normal dist.)

## ❖ Cross-nesting

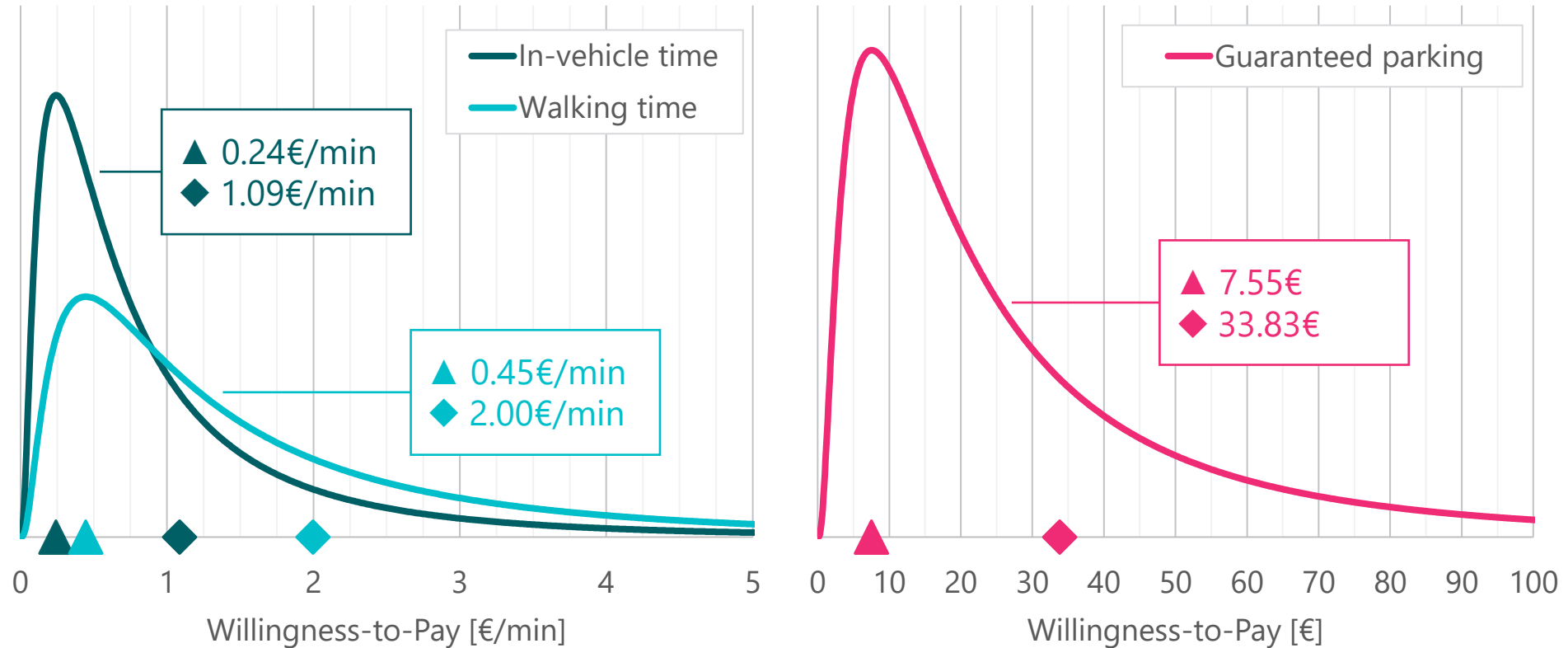
## ❖ Panel effect

## ❖ Interaction effects

- ◇ With current travel behaviour

**Final LL: -315.30**  
**Rho-square: 0.5923**  
**BIC: 709.47**

# Results



\* Useful use of in-vehicle time has no significant impact on travel time perception

# Results



**PT commuter**  
**Infrequent car use**

  
**baseline**

  
**€37.19**

  
**€47.11**



**Car commuter**  
**<50% by car**

  
**€-43.83**

  
**baseline**

  
**€3.75**



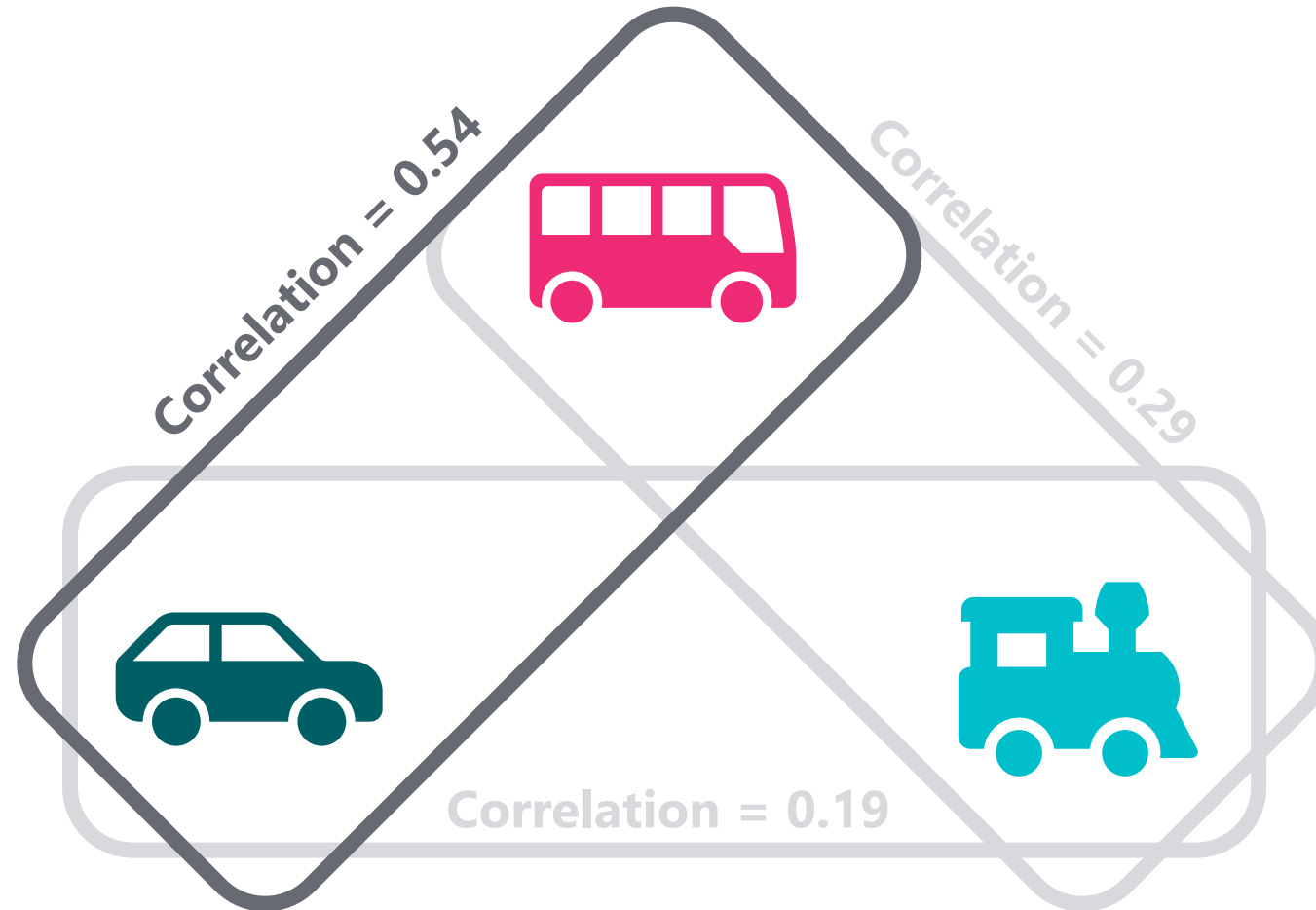
**Car commuter**  
**>50% by car**

  
**€-69.35**

  
**baseline**

  
**€3.75**

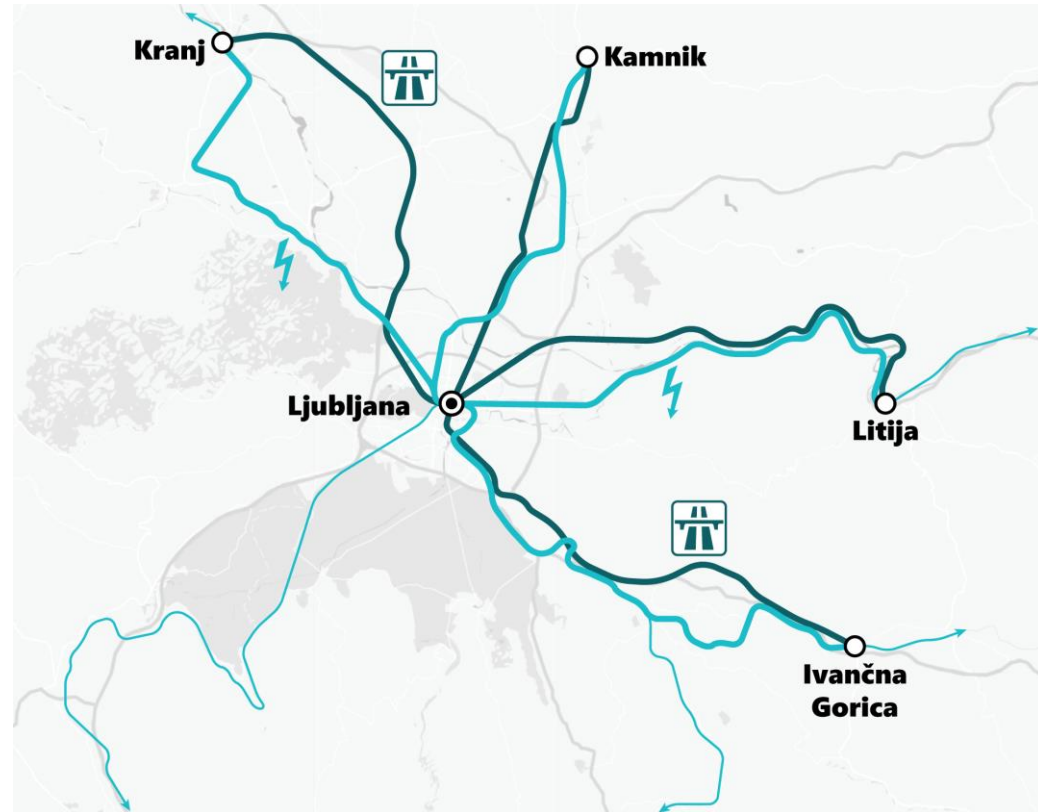
# Results



# Implications



- ❖ Analysing the impact of different policies
- ❖ 4 corridors with different characteristics
  - ◇ All have a railway connection
  - ◇ 2 with a comparatively good railway connection
  - ◇ 2 with a comparatively good road connection



# Implications



- ❖ PUDO
  - ◇ pick-up/drop-off locations
  - ◇ Trade-off walking to in-vehicle time (1 – 1 min)
- ❖ Car parking
  - ◇ Varying monthly parking cost
- ❖ GoOpti subsidy
  - ◇ Varying the microtransit monthly ticket
- ❖ Parking + Subsidy
  - ◇ Both policies combined



# Conclusion

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- ❖ Microtransit is an attractive commute service
  - ◇ Much more for PT commuters
- ❖ Walking time is perceived more negatively
  - ◇ But including PUDO stops has limited impact
- ❖ Guaranteed parking is highly valued
- ❖ Spending travel time in a useful way does not change the perception of travel time
- ❖ Pricing has a strong impact on attractiveness



# Thank you!



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